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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/471,460 12/22/99 FIGURA

T 94-0280.03

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MM41/1121

EXAMINER

LEE, C

ART UNIT

PAPER NUMBER

2825

DATE MAILED: 11/21/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

# Office Action Summary

Application No.  
**09/471,460**

Applicant(s)  
**Figura et al.**

Examiner  
**Calvin Lee**

Group Art Unit  
**2825**



☒ Responsive to communication(s) filed on Sep 6, 2000

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 35 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

## Disposition of Claim

☒ Claim(s) 1-46 is/are pending in the application

Of the above, claim(s) 1-19 and 23-43 is/are withdrawn from consideration

☐ Claim(s) \_\_\_\_\_ is/are allowed.

☒ Claim(s) 20-22 and 44-46 is/are rejected.

☐ Claim(s) \_\_\_\_\_ is/are objected to.

☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.

## Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some\* ☒ None of the CERTIFIED copies of the priority documents have been  
☐ received.

☐ received in Application No. (Series Code/Serial Number) \_\_\_\_\_

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

## DETAILED ACTION

### *Response to Amendment*

1. The cancellation of claims 1-19 and 23-43 in Amendment B received September 6, 2000 is acknowledged.

### *Provisional Rejection, 35 U.S.C. 101, Double Patenting*

2. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

3. Claims 20-22 and 44-46 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 20-22 and 46 of copending Application No. 09/470,651. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

### *Claim Rejections - 35 U.S.C. § 103*

4. Claims 20-22 and 44-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Imai et al.* (U.S. 6,089,183) in view of *Fujita et al.* (U.S. 5,048,413).

*Imai* teaches a method of forming a polymer inside a recess wafer, comprising the steps of - introducing a feed gas of fluorocarbon to a wafer X1 placed in a chamber 11b that generates high-density plasma at low gas pressure (Fig. 1 and col. 11, lines 57-67)

- establishing a pressure in the range of up to 100mTorr around the wafer (col. 12, line 16)
- forming a recess 7 embedded inside a nitride layer 1 having a contact in connecting to an underlying substrate 3 of the treated wafer (see Figs. 2a-2d and col. 12, lines 19-36)
- forming inside the recess a polymer as a resistant layer (col. 12 line 55 through col. 13 line 25), whereas the thickness of the resistant layer, which is controlled by the amount of the feed gas, is depended on the application (col. 13, lines 17-22)
- etching the resistant layer out from the wafer surface using parameters known in the art (Figs. 3a-3b and col. 12, line 9)

*Imai* fails to teach forming a conductive layer within the recess prior to fill the recess with the polymer. *Fujita* teaches a method for filling contact hole, comprising the steps of:

- forming a conductive film 18 (i.e., a film containing metal) within a contact 12 and over a wafer surface which contacts an insulator 14 overlying a substrate 10 (Fig. 3 and col. 3 lines 3-19)
- filling the recess with a polyamide 22 as a resist layer which is removed by the etching method to expose the substrate surface surrounding the recess (col. 3 lines 20-39)
- etching a portion 22A of the resist layer to expose conductive film 18 which has been left on the sidewall and the bottom of the recess (Fig. 7 and col. 3 lines 40-43)

Therefore, it would have been obvious to one having ordinary skills in the art to form a conductive layer on a contact, if desired, for the purpose of forming a conventional capacitor storage node for subsequent processing steps.

Thus, the combination reference of *Imai* and *Fujita* teaches using a chamber of a plasma source to form a polymer layer as a layer of resist within a contact over a conductive layer.

***Response to Arguments***

5. Applicants have argued that the combination of *Fujita*, *Numata*, *Donohoe*, and *Wang* in view of *IBM* fails to suggest the pending claims because the *Donohoe*'s reference can no longer serve as a basis for rejecting the claims. Examiner notes in the rejection above, that the specific portions of *Imai* '183 in view of *Fujita*, relied upon by the Examiner to reject the claims, have been pointed out. Therefore, Applicants' arguments are moot in light of the new rejection.

***Contact Information***

6. Any inquiry concerning this communication from the examiner should be directed to Examiner Calvin Lee at (703) 306-5854. The examiner can normally be reached on Monday through Thursday from 7:00AM to 5:00PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor *Matthew Smith* can be reached on (703) 308-1323.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956 or (703) 306-3329. The fax phone number for the Group is (703) 308-7722.

CL

November 9, 2000



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